1. INTRODUCTION TO MAJOR INVESTMENT PLANNING

New rail systems, extensions to existing rail systems, busways, and other kinds of fixed guideway transit facilities are developed through a process FTA calls major investment planning and project development. This process begins with the systems planning process and the initial local recognition that a fixed guideway may help solve local problems; continues through an "alternatives analysis" of fixed guideway technologies and alignments (as well as other reasonable non-fixed guideway options) intended to help local decisionmakers select a "design concept and scope" to implement; and concludes with the engineering and design work necessary to finalize project scope, complete NEPA, and develop firm capital and operating cost estimates. The planning process for large-scale transportation projects can be costly and involved. It includes highly complex analyses of potential changes in local travel patterns, economic development, and environmental quality. Furthermore, it is often conducted in a dynamic political and institutional setting. Despite these complexities, the purpose of the planning and project development process is quite straightforward: to develop sound and objective information necessary for informed decisionmaking.

This chapter serves as an introduction to FTA's planning and project development process for major transit capital investments. It begins with a summary of the policy and regulatory background of the New Starts program. This discussion highlights the basic planning tenets which have supported FTA's (and, prior to 1991, the Urban Mass Transportation Administration's) requirements for alternatives analysis for over 25 years. This chapter also describes the alternatives analysis (AA) study process which is the focus of this guidance, as well as the subsequent steps of the New Starts project development process: preliminary engineering (PE) and final design.

1.1 Policy and Regulatory Background

Since the early 1970's, the Federal government has provided a large share of the Nation's capital investment in urban mass transportation, particularly for New Starts projects. Beginning in 1976, the Department of Transportation/ Urban Mass Transportation Administration (UMTA) published a series of

policy statements intended to define the local planning and Federal evaluation processes necessary to ensure that available New Starts resources would be used in the most prudent and effective manner as possible. These early policy statements stressed the fundamental role that good planning must necessarily play in the development of major capital transportation improvements. The planning principles conveyed by these statements remain in effect today, and have been incorporated in subsequent Federal legislation. At the same time, several changes to FTA's evaluation procedures for New Starts projects have been articulated by Federal statute and FTA regulation. The following briefly summarizes FTA and Congressional directives in support of major investment planning, project development, and evaluation.

1.1.1 Early Policy Statements (1976, 1978, 1980, 1984)

UMTA's first policy statement on major transit capital investments was issued in 1976 (41 FR 41512 (September 22, 1976)). It introduced a process-oriented approach with the requirement that New Starts projects be subjected to an analysis of alternatives, including a transportation system management (TSM) alternative that uses no- and low-capital measures to make the best use of the existing transportation system. The Statement also required projects to be cost-effective.

This original policy was supplemented in 1978 by a *Policy on Rail Transit* (43 FR 9428 (March 7, 1998)). This statement reiterated the requirement for alternatives analysis, established requirements for local financial commitments to proposed New Starts projects, established the concept of a contract providing for a multi-year commitment of Federal funds, with a maximum limit of Federal participation (the Full Funding Grant Agreement--FFGA), and required that local governments undertake supporting local land use actions. The *Policy on Rail Transit* was supplemented by a 1980 policy statement that linked the alternatives analysis requirement to the Environmental Impact Statement development process (45 FR 71986 (October 30, 1980.))

These principles were reiterated and refined in a May 18, 1984, *Statement of Policy on Major Urban Mass Transportation Capital Investments* (49 FR 21284). The major feature of this policy statement was the introduction of an approach for making comparisons between competing projects. To do so, a rating system was established by UMTA under which projects were evaluated in terms of a cost effectiveness index of forecast incremental cost per incremental rider for the build alternative, compared with the TSM alternative as the base. Other index threshold values were established which projects had to pass in order to be considered for funding. In addition, the criteria to be used to judge local financial commitment were explicitly defined. Finally, the statement provided additional clarity on the project development process for major investment projects, including reconfirming the need for UMTA "consent" to initiate alternatives analysis and preliminary engineering.

Collectively, these UMTA policy statements established the key tenets and principles upon which local alternatives analyses are based. These principles include the following:

- Proposed guideway projects shall be consistent with the area's comprehensive long-range transportation plan which articulates the overall direction for metropolitan development and identifies major transportation corridors.

- Projects must be cost-effective as determined through an analysis of transportation alternatives, including low-cost improvements to the existing infrastructure and better management and operation of existing transportation facilities.

- Project decisions should be based upon realistic cost estimates and financing proposals that take into account the operating expenses of the proposed – and existing – transit system and service.

- Localities should consider a program of local supportive actions to enhance the project's cost effectiveness, patronage, economic vitality, and other measures of performance. These supportive actions include land use planning, zoning, joint development, adequate feeder bus services, adequate parking, pricing and other demand management strategies, and regulatory and enforcement measures.

- There must be a full opportunity for the timely involvement of the public, local elected officials, and all levels of government in the alternatives analysis process.

Taken together, these principles support an objective and defensible process for analyzing and evaluating the costs, benefits, and other impacts of alternative strategies as a means for solving locally-defined transportation problems. In addition to serving local decisionmaking, adherence to these principles also ensures an equitable basis for UMTA/FTA and Congressional understanding of the merits of competing New Starts project proposals as a means of fulfilling their funding allocation responsibilities.

1.1.2 STURAA, ISTEA, and TEA-21

The principles of the 1984 policy statement were later incorporated into law with enactment by Congress of the *Surface Transportation and Uniform Relocation Assistance Act of 1987* (STURAA). This act established in law a set of criteria which New Starts projects had to meet in order to be eligible for Federal discretionary grants. Specifically, projects had to be cost-effective and supported by an adequate degree of local financial commitment. STURAA also added a requirement for an annual report to Congress laying out the Department's recommendations for discretionary funding for New Starts for the subsequent fiscal year.

Subsequent Federal legislation has focused on refinements to FTA's process for evaluating – and rating - candidate New Starts projects. The *Intermodal Surface Transportation Efficiency Act of 1991* (ISTEA) made substantial changes to the legislative basis for the criteria used to evaluate candidate projects. Specifically, the original requirement that a project be cost-effective was expanded; the new requirement specified that projects be justified, based on a comprehensive review of its mobility improvements, environmental benefits, cost-effectiveness, and operating efficiencies. In addition, certain considerations and guidelines were established that were to be taken into account in determining how well a project met the criteria.

On June 9, 1998, the *Transportation Equity Act for the 21st Century* (TEA-21) was enacted. TEA-21 left much of past law and policy regarding the New Starts planning and project development process intact. However, TEA-21 did require FTA approval for a project to advance from preliminary engineering to the final design stage of the project development process, and required that FTA issue regulations on the manner in which candidate New Starts projects will be evaluated and rated.

1.1.3 Final Rule on Major Capital Investment Projects

FTA issued a *Final Rule on Major Capital Investment Projects* on December 7, 2000. The Final Rule did not substantially impact FTA's evaluation and rating process of candidate New Starts projects, nor did it change the major investment planning and project development process in any significant way. However, the Rule did include three important provisions which were intended to both confirm long-standing FTA policy and enhance the measurement of New Starts project impacts.

1.1.3.1 Baseline Alternative

The Final Rule establishes a single "baseline" alternative against which New Starts projects shall be evaluated in terms of cost effectiveness and other justification measures; previous to the Final Rule, project impacts were measured against both a "no-build" and TSM alternative. Under the Final Rule, the TSM will continue to serve as the New Starts baseline for *most* candidate projects. In select cases, the no-build alternative may satisfy the baseline alternative requirement. Additional information on the development of the no-build and TSM alternatives, and the selection of one of them as the New Starts baseline alternative, is provided in Part II, Chapter 2 *Definition of Alternatives* of this guidance.

1.1.3.2 Transportation System User Benefits Measure

The Final Rule introduced a new measure for New Starts project cost-effectiveness, "Transportation System User Benefits." User benefits are generated as an output of the regional travel demand forecasting process, and reflect the estimated mobility impacts, in terms of weighted travel time and costs, of candidate transit capital investments. Local review of user benefit forecasts is a beneficial analytical and diagnostic exercise, as it provides the project team with insights into market-specific impacts of a proposed

investment while at the same time identifying potential weaknesses in the technical work supporting the alternatives analysis study. Additional information on transportation system user benefits is provided in updates to Part II Chapter 6 *Interpretation and Use of Travel Forecasts*.

1.1.3.3 Before and After Study

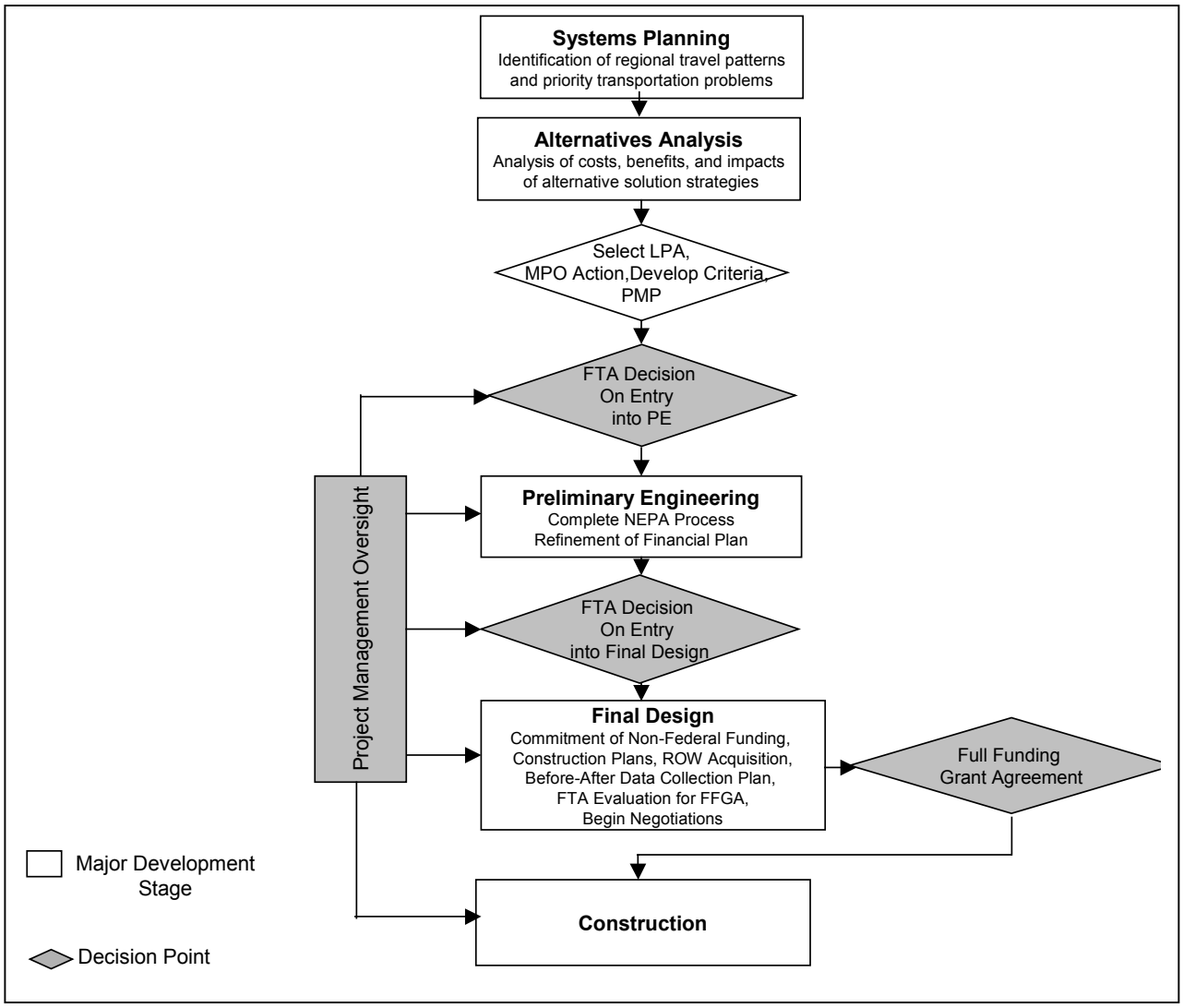
FTA's *Final Rule on Major Capital Investment Projects* requires that project sponsors seeking Full Funding Grant Agreements submit a complete plan for the collection and analysis of information to identify the impacts of their projects and the accuracy of their forecasts. This requirement originates with the Government Performance and Results Act (GPRA), and reflects FTA's objectives for developing a greater understanding of a) the actualized benefits of New Starts projects, once implemented and in operation and b) the degree to which forecasts prepared as part of project planning and development are realized, and the reasons why.

In order to meet these important objectives, FTA requires that local project sponsors assemble information on project scope, transit service levels, capital costs, O&M costs, and ridership patterns generated during planning and project development, as well as just prior to - and shortly after – implementation and operation of the project. Although a formal plan for the Before and After Study is not required until final design (and only then for projects seeking a FFGA), candidate New Starts project sponsors must be aware that the element of the study relating to predicted project impacts requires that methodologies, assumptions, and resulting information for each of the required characteristics must be documented throughout alternatives analysis (and later, at the conclusion of preliminary engineering). Updated Part I Chapter 3 (*Framework for the Analysis*) of this guidance discusses the necessary preparation for the study during alternatives analysis.

1.2 Major Investment Planning and Project Development Process

TEA-21 and the subsequent *Final Rule on Major Capital Investment Projects* continues FTA's long-standing process for the planning and development of New Starts projects. This process is presented graphically in Figure 1-1 on the following page.

Figure 1-1
Planning and Project Development Process for New Starts Projects



FTA intends that this process (through the completion of preliminary engineering) be carried out as part of the overall metropolitan planning and environmental review processes, as specified by 23 CFR Part 450 *FTA/FHWA Joint Final Rule on Metropolitan and Statewide Planning* and 23 CFR Part 771 *Final Rule on Environmental Impact and Related Procedures*, respectively. As such, planning and project development activities for New Starts projects should not require any more rigor or detailed technical analysis than would be expected for the adequate study and subsequent development of any major transportation (transit, highway, or multimodal) project in a given corridor. This analysis includes (among other activities) the identification of specific transportation problems in the corridor; the definition of reasonable alternative strategies to address these problems; the development of forecasts for these alternatives in terms of environmental, transportation, and financial impacts;

and an evaluation of how each alternative addresses transportation problems, goals, and objectives in the corridor. These analytical activities are intended to provide local decisionmakers with the necessary information on which to base the selection of a specific transportation project design concept and scope for inclusion in the fiscally constrained long range plan and to advance it into preliminary engineering and the completion of the environmental review process.

Taken as a whole, the planning and project development process reflects a continuum of policy development, technical studies, and decisionmaking activities, where broad regional problems are identified and prioritized; options for addressing specific problems in specific corridors are identified, evaluated, and narrowed; and optimal investment strategies are selected and advanced for more detailed analysis and, ultimately, implementation and operation. The following briefly describes the major phases of this process: systems planning; alternatives analysis (AA); preliminary engineering (PE); and final design.

1.2.1 Systems Planning

Systems planning refers to the continuing, comprehensive, and coordinated transportation planning process carried out by metropolitan planning organizations - in cooperation with state Departments of Transportation, local transit operators, and affected local governments - in urbanized areas throughout the country. This planning process results in the development of long range multimodal transportation plans and short term improvement programs, as well as a number of other transportation and air quality analyses.

Many of the activities performed during systems planning necessarily precede a systematic consideration of fixed guideway transit in locally-identified corridors. During systems planning, local agencies examine long range urban development trends, collect travel data, forecast needs, and evaluate regionwide transportation policies and investment options. Based on their assessments of travel patterns and establishment of goals and objectives for regional mobility, local transportation agencies and governments identify transportation problems and needs in priority transportation corridors throughout the metropolitan area. Systems planning further results in the identification of a wide range of conceptual transportation alternatives to advance into a more focused corridor planning effort, such as an alternatives analysis.

Additional information on systems planning is provided in Part I Chapter 2, *Systems Planning*.

1.2.2 Alternatives Analysis

A corridor planning study in which one or more of the alternatives under study is, or includes, a fixed guideway facility is often referred to as an alternatives analysis. The name “alternatives analysis” has as its basis the New Starts planning provisions contained in Federal legislation; in fact, alternatives

analysis is synonymous with multimodal corridor planning consistent with the principles of both the major investment study (MIS) process practiced in many areas around the country, and the Draft Environmental Impact Statement (DEIS) required by the National Environmental Policy Act of 1969 (NEPA). Regardless of what the study is called, its intent is the same: to identify and compare the costs, benefits, and impacts of a range of transportation alternatives as a means of providing local decisionmakers with the information necessary to implement the most appropriate transportation solutions in priority corridors.

Alternatives analysis can be viewed as a bridge between systems planning at a metropolitan scale (which identifies regional travel patterns and transportation corridors in need of improvements) and preliminary engineering (where a project's design is refined sufficiently to incorporate the avoidance, minimization, and mitigations necessary to complete the environmental process). AA is the process for reaching a broad consensus on exactly what type of improvement(s) best meet locally defined goals and objectives for a specified corridor. Because it involves specialized technical analyses and an evaluation of transportation alternatives that have varied effects on the surrounding community, the alternatives analysis is necessarily a collaborative process. The AA study typically involves local transportation planning agencies (including the metropolitan planning organization) and service providers, local governments, state and Federal resource agencies, potential funding partners, and (through a formal citizen participation process) the general public.

As with the MIS, there is a multitude of ways that an alternatives analysis can be coordinated with the environmental review required by NEPA. NEPA itself mandates that the EIS reflect an analysis of all reasonable alternatives, so the careful coordination of the alternatives analysis and NEPA review is essential to the efficiency of the study and to public and interagency understanding of the process. Various coordination methods have been used, such as "incorporation by reference" to carry the alternatives analysis results into a NEPA document, or use of a first-tier or programmatic EIS as an alternatives analysis. While the decision to conduct the AA either "within" or "outside" the NEPA process is an important milestone which should be agreed upon as early as possible within the study process, FTA emphasizes that the appropriate level of analysis is a function of the complexity of the corridor and its transportation needs, not of the regulatory framework. The level of analysis should be commensurate with the planning decision at hand, that is, the analysis of every issue should be carried just far enough to make an intelligent selection of a preferred transportation design concept and scope from the alternatives available. Updated Part III of this guidance provides additional information on the linkage between alternatives analysis and NEPA review and environmental documentation.

1.2.3 Preliminary Engineering

During the preliminary engineering phase of project development, local project sponsors refine the design of the locally preferred alternative to the extent necessary to complete the NEPA process, taking into consideration all reasonable design options. Preliminary engineering results in estimates of project costs, benefits, and impacts for which there is a much higher degree of confidence. The proposed project's New Starts criteria are similarly refined in the preliminary engineering phase of development. In addition, project management plans should be finalized, products of the PE effort that demonstrate the technical capability of the project sponsor to advance further in development should be substantially completed, and commitments of local funding sources should be firmed up (if not previously committed).

Preliminary engineering for a major capital investment project is considered complete when FTA declares in the environmental Record of Decision (ROD) or Finding of No Significant Impact (FONSI) that the NEPA process has been completed; when the project scope, capital costs estimates, and financial plan are finalized; and when the project sponsor has adequately demonstrated to FTA its technical capability to advance the project into final design and construction.

1.2.4 Final Design

Final design is the last phase of project development, and includes right-of-way acquisition, utility relocation, and the preparation of final construction plans (including construction management plans), detailed specifications, construction cost estimates, and bid documents. The project's financial plan is finalized, and a plan for the collection and analysis of data needed to undertake a Before and After Study is developed.

If proposed for by FTA, New Starts project sponsors may enter into an FFGA during final design. FFGAs between FTA and a grantee are negotiated with a maximum amount of Federal participation in the project and a yearly funding schedule. Local project sponsors are required to complete construction of the project, as defined, to the point of initiating revenue operations, and to absorb any additional costs incurred.